Motivated Sensitivity to Preference-Inconsistent Information

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If preference-inconsistent information initiates more effortful cognitive analysis than does preference-consistent information, then people should be more sensitive processors of information they do not want to believe than of information they do want to believe. Three studies supported this prediction. Study 1 found that inferences drawn from unfavorable interpersonal feedback revealed a correspondence bias, whereas inferences drawn from unfavorable feedback were sensitive to situational constraint. Study 2 showed this sensitivity to the quality of unfavorable feedback to disappear under cognitive load. Study 3 showed that evaluations of the accuracy of favorable medical diagnoses were insensitive to the probability of alternative explanation, whereas evaluations of unfavorable diagnoses were sensitive to probability information. The importance of adaptive considerations in theories of motivated reasoning is discussed.

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Higgins, 1986), research has been slow to move beyond this point to identify specific ways in which motivational forces can enter into and affect the information-processing sequence, and few attempts have been made to fully integrate research on motivated bias with the more general body of judgment bias research.

In this article, we address these limitations by presenting a view of motivated reasoning that incorporates the effects of wishes and fears in the information-processing sequence as simply another example of the pervasive tendency in human thought to strategically allocate cognitive resources. Specifically, we argue that people often come to believe what they want to believe (and disbelieve what they want not to believe) because of a quite reasonable tendency to think more deeply about negative events than positive ones. Three experiments are then described that examined an important but counterintuitive prediction derived from this "adaptive" view of motivated reasoning: that judgments about information people do not want to believe will be more sensitive to information quality than will judgments about information they do want to believe.

The Quantity of Processing View of Motivated Reasoning

Wishes, needs, hopes, and fears can all be represented generically in judgment situations as creating a priori preferences for particular judgment conclusions. The empirical phenomenon that has received the most attention and generated the most controversy in the motivated reasoning literature is the pervasive tendency for individuals to more readily accept the validity of information that is consistent with a preferred judgment conclusion (preference-consistent information) than of information that is inconsistent with a preferred judgment conclusion (preference-inconsistent information). That is, whether the preference stems from the desire to be intelligent rather than unintelligent (Wyer & Frey, 1983), professionally competent rather than incompetent (Beckman, 1973), socially sensitive rather than insensitive (Pyszczynski, Greenberg, & Holt, 1985), or healthy rather than ill (Ditto et al., 1988; Kunda, 1987), research has repeatedly shown that, all else being equal, information one wants to believe is perceived as more valid or accurate than information one prefers not to believe. The question facing researchers, then, is why does this differential acceptance occur? How does the processing of preference-consistent information differ from that of preference-inconsistent information?

Most previous research on motivated reasoning has suggested, either explicitly or implicitly, that people approach preference-consistent and preference-inconsistent information with different processing goals and use a biased set of cognitive operations to actively pursue those goals. This view has been expressed most clearly by Kunda (1987, 1990; Klein & Kunda, 1992, 1993; Kunda & Sanitioso, 1989; Sanitioso, Kunda, & Fong, 1990), who has argued that individuals motivated to arrive at a particular judgment conclusion engage in a biased memory search to access hypotheses, inference rules, and instances from past behavior that are most likely to support their desired conclusion. From this perspective, preference-inconsistent information is seen as less valid than preference-consistent information because individuals faced with information they prefer not to believe recruit memories with the goal of undermining the validity of that information, whereas those faced with information they want to believe engage in a similar construction process but with the goal of supporting the validity of the information. The only limit on this biased belief construction process, according to Kunda (1990), is the desire to maintain an "illusion of objectivity" (Pyszczynski & Greenberg, 1987). That is, individuals will not simply believe anything they wish to believe; rather, their judgments are constrained by the plausibility of the explanations they can construct from available evidence, such that people will reach a desired conclusion only if they can construct a justification that they believe could "persuade a dispassionate observer" (Kunda, 1990, pp. 482–483).

There is, however, another way to construe how the processing of preference-consistent and preference-inconsistent information might differ. A large body of research in social cognition suggests that negative information and negative affective states produce more systematic, detail-oriented cognitive processing than positive information and positive affective states (e.g., Bless et al., 1996; Isen, 1984; Mackie & Worth, 1989; Pratto & John, 1991; Schwarz, 1990; Taylor, 1991). The most common explanation for this asymmetry is an adaptive one: Because negative stimuli are more likely than positive ones to require an immediate behavioral response (to avoid loss or harm), negative stimuli evoke a "mobilization" response that includes a narrowing and focusing of attention and an increase in detail-oriented cognitive analysis (Pratto & John, 1991; Taylor, 1991). Integrating this body of research with that on motivated reasoning, Ditto and Lopez (1992) argued that the tendency to more readily embrace preference-consistent than preference-inconsistent information stems from the simple fact that the former is less likely than the latter to initiate effortful cognitive analysis. From this perspective, then, rather than actively working to construct justifications for preference-consistent information, people often unthinkingly accept information they want to believe "at face value." Information inconsistent with a preferred judgment conclusion, on the other hand, is more likely to initiate an effortful cognitive appraisal in which alternative explanations for the unwanted information are likely to be considered, producing uncertainty regarding the validity of the information. Ditto and Lopez (1992) referred to this view of motivated reasoning as the quantity of processing (QOP) view to highlight the contention that it is the amount or intensity of cognitive processing that most clearly differentiates the treatment of preference-consistent and preference-inconsistent information rather than the direction or intended goal of that processing.

1 Kruglanski (1990) referred to the desire to reach a particular judgment conclusion as a need for specific closure, and Kunda (1990) referred to it as a directional goal. We choose the more agnostic term preference to avoid some of the specific connotations carried by the words need and goal and to emphasize the similarity of the observed phenomena independent of the source of the individual's preference.

2 The argument regarding the cognitive effects of negative and positive mood (Bless et al., 1996; Schwarz, 1990) is identical to that for negative and positive information. It simply adds that, because affect serves a signal function regarding the state of one's current environment (e.g., Frijda, 1986, 1987, 1988), diffuse mood states (evoked by weather, reminiscence, etc.) produce cognitive effects even in the absence of specific confrontation with negative or positive information.
Sensitivity to Information Quality

With two contrasting views of how the processing of preference-consistent and preference-inconsistent information differs, the obvious challenge is to find some way to provide empirical support for one view over the other. Fortunately, because identifying the role of effortful cognitive processing in judgmental phenomena has been key to the theoretical concerns of many social cognition researchers (Bargh, 1984; Chaiken, 1987; Fiske & Neuberg, 1990; Gilbert, 1991; Petty & Cacioppo, 1986), a variety of methodological strategies are available for this purpose.

One relatively indirect but well-researched strategy is that used to test predictions from the elaboration likelihood model (ELM) of persuasion (see Petty & Cacioppo, 1986, for a review). A central concern of the ELM is distinguishing between persuasion achieved through the central route (characterized by relatively extensive, detail-oriented consideration of the persuasive message) and that achieved through the peripheral route (characterized by relatively little effortful consideration of the persuasive message). The most common strategy used by ELM researchers for this purpose is to examine individuals' sensitivity to the quality of the arguments composing the message (e.g., Cacioppo & Petty, 1979; Petty, Cacioppo, & Goldman, 1981; Petty, Wells, & Brock, 1976). The underlying logic is that an individual engaging in only a cursory consideration of a persuasive message should be relatively insensitive to the quality of the arguments mustered to support it. Only if an individual is motivated (e.g., Petty et al., 1981) and able (e.g., Petty et al., 1976) to engage in an effortful consideration of the persuasive message will he or she distinguish between a message composed of strong, compelling arguments and one composed of weak, specious ones and be persuaded by the former and not by the latter.

A similar logic underlies research on the use of situational information in attributional inferences. The correspondence bias (also known as the fundamental attribution error; Ross, 1977) is the well-documented tendency for perceivers to underattribute the role of situational factors in causal attributions (see Gilbert & Malone, 1995, for a review). Gilbert and his colleagues (e.g., Gilbert & Krull, 1988; Gilbert, Krull, & Pelham, 1988; Gilbert, Pelham, & Krull, 1988) have proposed that a key factor predisposing this bias is that whereas dispositional attributions are made with little effort, adjusting inferences to account for situational influence requires more cognitive work. In support of this proposal, research has repeatedly shown that inferences are more sensitive to situational influence when perceivers have the motivation (Fein, Hilton, & Miller, 1990; Tetlock, 1985; Webster, 1993) and ability (Gilbert, Krull, & Pelham, 1988; Gilbert, Pelham, & Krull, 1988) to allocate cognitive resources to attributional processing.

Both of these literatures use sensitivity to "information quality" as the criterion for demonstrating effortful processing. When this logic is imported to the domain of motivated reasoning, it yields a rather interesting prediction. If, as the QOP view suggests, preference-inconsistent information is processed more extensively than preference-consistent information, then judgments about preference-inconsistent information ought to show greater sensitivity to information quality than judgments about preference-consistent information. Because information consistent with a preferred judgment conclusion is thought to generate relatively little cognitive analysis, individuals should be relatively insensitive to information quality, accepting information that only weakly supports a preferred conclusion just as readily as information that supports it more strongly. Alternatively, the more effortful analysis thought to be initiated by information inconsistent with a preferred conclusion should make individuals confronted with it more likely to distinguish between weak and more compelling information, more readily accepting the latter than the former.

This counterintuitive prediction—that people will be more sensitive processors of information they do not want to believe than of information they do want to believe—follows directly from the specific logic of the QOP view. Perhaps more important, however, it also highlights the key theoretical distinction between the QOP view and past treatments of motivated reasoning. Central to the QOP view is an image of people as fundamentally adaptive information processors (Ditto & Lopez, 1992; Lopez, Ditto, & Wag horn, 1994). Whereas past treatments of motivated reasoning have portrayed people as intentionally pursuing the goal of reaching a desired conclusion (i.e., as striving to maintain self-esteem or constructing justifications for preferred conclusions), the QOP view sees the reluctance of people to acknowledge the validity of unwanted information as an unintentional by-product of a quite reasonable strategy of directing detail-oriented cognitive processing toward potentially threatening environmental stimuli. From an adaptive perspective, it would seem counterproductive for an organism to direct its attention to threatening stimuli only to convince itself that the threat did not exist. Rather, the adaptive response to potential threat is to initiate a detail-oriented analysis of it in an attempt to determine whether a threat does indeed exist; if it does, appropriate coping behaviors can be initiated, but if it does not, valuable resources will not be expended in mobilizing to cope with an imaginary danger. Ditto and Lopez (1992) tried to capture this adaptive flavor by describing people as relatively "skeptical" processors of preference-inconsistent information, implying a thoughtful form of reticence that can be overcome with sufficiently compelling evidence. The data they reported, however, showed only that people required more information to reach a preference-inconsistent than a preference-consistent conclusion. They did not examine the much stronger prediction derived from the current adaptive analysis that people should be particularly discriminating but essentially unbiased processors of preference-inconsistent information, rejecting the information if analysis reveals it to be of dubious quality but accepting its validity if analysis suggests that the unwelcome information is likely to be true.

The relatively sensitive processing of preference-inconsistent information predicted by the QOP view cannot be explained by the biased belief construction view. Like most past treatments of motivated bias, the biased belief construction view sees the processing of preference-consistent and preference-inconsistent information as equally vigorous but directed toward different ends. This view generates two possible predictions. First, individuals' skill in constructing justifications for preferred judgment conclusions could make the processing of both preference-consistent and preference-inconsistent information insensitive to
information quality (producing a main effect tendency to perceive preference-inconsistent information as less valid than preference-consistent information and no effect of information quality). An alternative prediction, however, is that judgments about both types of information will be sensitive to information quality because of a generalized desire to maintain an illusion of objectivity that should be operative whether the encountered information supports or undermines one’s preferred judgment conclusion (producing a main effect tendency to perceive high quality information as more valid than low quality information that could occur with or without an independent effect of preference consistency). In either case, the predictions of the biased belief construction view are distinct from those of the QOP view in that biased belief construction predicts that the effects of information quality will be symmetrical across preference-consistent and preference-inconsistent information (affecting the processing of either both types or neither type of information), whereas the QOP view predicts a pattern of asymmetrical sensitivity.

Study 1

Study 1 examined the asymmetrical sensitivity prediction using a procedure inspired by the correspondence bias literature. Research has demonstrated that the sensitivity of social inferences to situational constraint information is affected by motivational factors such as the extent to which the perceiver feels accountable for the judgment (Tetlock, 1985) and his or her need for cognitive closure (Webster, 1993). In both cases, individuals motivated to think deeply about the available information (i.e., those who felt accountable for their judgments or had a low need for cognitive closure) were more likely to adjust their inferences for situational constraint than were less motivated individuals.

Study 1 examined whether preference-based motivations affect the magnitude of the correspondence bias in a similar way. Specifically, on the basis of the logic outlined earlier, it was expected that if preference-consistent information receives relatively little cognitive analysis, inferences drawn from this information should show the correspondence bias pattern of insensitivity to situational constraint information. Inferences drawn from preference-inconsistent information, on the other hand, should show greater sensitivity to situational constraint (i.e., information quality) because of the tendency of such information to initiate a more effortful cognitive appraisal.

Method

Overview

Male participants completed a brief questionnaire about their attitudes, values, and opinions. Participants were told that a second participant (a female confederate) would use this information to form an impression of them and that their task would be to read this written impression and evaluate its accuracy. In reality, the impression was manipulated to be either favorable or unfavorable. Orthogonally, half of the participants were told that the second participant had been free to write whatever she desired regarding the participant, whereas the other half were told that she had been given specific instructions to comment only on the participant’s most desirable (when the impression was favorable) or most undesirable (when the impression was unfavorable) characteristics. The key dependent measures concerned participants’ inferences about the second participant’s actual feelings toward them.

Participants

Sixty-two male undergraduates at Kent State University participated for course credit. The data from 2 participants were not analyzed because each expressed suspicion about the study during debriefing, leaving 15 participants in each of the four experimental conditions.

First Impressions Cover Story

Participants arrived for a study they believed to be concerned with “the accuracy of first impressions.” A female undergraduate posing as a second participant was present in the waiting area when the male participant arrived. After both students had been led to the laboratory suite and situated in separate rooms, the experimenter explained to the male participant that each of the students had been randomly assigned to one of two roles in the study. The student assigned to the “writer condition” would be given some basic information about the other participant and would then generate a written impression of that person. The student assigned to the “judge condition” would be given that written impression and asked to rate its accuracy. The male participant was always told that the results of the drawing were such that he was assigned to the judge condition.

It was explained that for the writer to be able to form her impression, it was necessary for the judge to provide some personal information. For this reason, the participant was asked to fill out a “first impressions questionnaire” covering a wide range of topics (personal information such as age and preferences for music and hobbies, along with value-oriented information such as whether the participant agreed or disagreed with capital punishment). As soon as the participant completed the questionnaire, it was taken by the experimenter and ostensibly given to the writer. The participant completed a brief filler task while the writer was said to be reading the participant’s questionnaire and generating her written impression.

Manipulations

After a few minutes, the experimenter returned with the writer’s impression of the participant and a questionnaire to complete after reading the impression. The written impression consisted of four evaluative statements regarding the participant. These statements were hand copied by the female confederate from a basic script and contained the feedback manipulation. At the top of the page containing the written impression was a set of directions that the writer supposedly followed in forming her impression. These directions contained the perceived choice (i.e., situational constraint) manipulation.

Feedback manipulation. For half of the participants, the four statements written by the writer conveyed a very favorable impression of the participant, whereas for the other half of the participants, the four statements conveyed a very negative impression. For example, in the favorable feedback condition the participant read that the writer loved his taste in music and hobbies and thought his priorities were in the right places, whereas in the unfavorable condition the participant read that the writer hated his taste in music and hobbies and thought that his priorities were in precisely the wrong places. As a means of enhancing the believability and personal relevance of the feedback, two of the statements were created so that the confederate could insert into her scripted comments information drawn from the participant’s first impressions questionnaire. For instance, if a participant stated that his favorite type of music was jazz, his written impression read “First of
all, I love (hate) his taste in music. In general, I really like (dislike)
people who listen to jazz.'

Perceived choice manipulation. For half of the participants, the di-
rections stated that the writer was free to write whatever she wished
about the participant, whereas for the other half of the participants, the
directions stated that the writer was given specific constraints as to what
she could write. The directions for all high choice participants were
identical. Specifically, the directions required the writer to

comment on the four aspects of the other participant that you think
best describe that person. These comments can be directed at things
that you find desirable about the other participant, or things you
find undesirable about the participant. You should feel free to write
whatever you wish.

In contrast, participants in the low choice conditions were informed that
the writer was restricted in what she wrote. These directions were identi-
cal in form for both favorable and unfavorable feedback participants
but differed in whether they required the writer to convey a favorable (in
the favorable feedback conditions) or an unfavorable (in the unfavorable
feedback conditions) impression of the participant. Specifically, partici-
pants in the low choice conditions read that the writer was asked to

comment only on what you perceive as this person's most desirable
(undesirable) aspects. We realize that there may very well be things
that you dislike (like) about this person . . . but we ask that you
limit your comments to those things that you found most desirable
(undesirable).

Dependent Measures

Immediately after reading the written impression, participants com-
pleted a brief questionnaire soliciting their reactions to the feedback.
The key items on this questionnaire were three questions regarding
participants' interpretation of the feedback received from the writer.
First, as a check on the feedback manipulation, participants were asked
to characterize the writer's written impression of them on a 9-point scale
ranging from very negative (1) to very positive (9). Second, participants
were asked two questions regarding their inferences about the writer's
true impression of them: (a) "How would you characterize the other
person's actual impression of you?" (1 = very negative, 9 = very
positive) and (b) "How do you think the other person feels about you
as a person?" (1 = strong disliking, 9 = strong liking).

The dependent measures also contained two questions that more ex-
plicitly addressed participants' recognition of the constrained nature of
the written impressions: (a) "Do you think that what this person wrote
about you, is in fact what she really believes?" (1 = does not reflect
what she or he thinks at all, 9 = perfectly reflects what she or he thinks)
and (b) "To what extent do you think that the other participant's written
impression of you was biased by the experimental directions?" (1 =
not at all biased, 9 = biased very much).

Finally, as a means of checking on the viability of alternative explana-
tions for the inference results based on the differential expectedness of
favorable and unfavorable feedback, a measure of self-reported surprise
was included (Ditto & Lopez, 1992). That is, although our intent was
to make the favorable and unfavorable feedback extreme enough such
that both would be perceived as equally surprising, it is possible that
the receipt of unfavorable feedback in this context would be particularly
unexpected. Given that prior research has shown that expectancy-incon-
sistent information attracts more processing than expectancy-consistent
information (e.g., Hilton, Klein, & von Hippel, 1991; Pyszczynski &
Greenberg, 1981), confounding the favorability and expectedness of the
feedback in this way would create ambiguity regarding whether any
processing differences were due to cognitive (i.e., expectancy-driven)
or motivational (i.e., preference-driven) factors. Thus, participants
were asked to indicate their surprise at the writer's impression of them
on a 9-point scale ranging from not at all surprised (1) to very sur-
prised (9).

Debriefing

On completion of the dependent measures questionnaire, participants
were probed for suspicion and told the true nature of the study. The
confederate was brought into the room and introduced to the participant
to reassure him that all feedback received was bogus. Participants were
then thanked for their participation and dismissed.

Results

Unless otherwise noted, all analyses were Feedback (favor-
able vs. unfavorable) X Perceived Choice (high vs. low) analy-
ses of variance (ANOVA's).

Evaluation of Written Impression

Consistent with the intent of the feedback manipulation, the
written impression was seen as significantly more favorable in
the favorable feedback condition (M = 8.5) than in the unfavor-
able feedback condition (M = 1.6), F(1, 56) = 952.09, p < .01. Interestingly, the ANOVA also revealed a significant main
effect for choice, F(1, 56) = 5.74, p < .05, and a significant Feedback X Choice interaction, F(1, 56) = 5.74, p < .05. The
written impressions were rated as less favorable in the high
choice condition (M = 4.8) than in the low choice condition
(M = 5.3). This effect was qualified, however, by the Feedback
X Choice interaction, indicating that the pattern of results pre-
dicted for the inference variables was evident in ratings of the
written impression as well. Simple effects analyses revealed that
participants receiving favorable feedback were unaffected by
the situational constraint manipulation, rating the impressions
as equally favorable whether they were ostensibly written under
high or low choice instructions (M = 8.5 in both conditions).
Ratings of participants receiving unfavorable feedback, on
the other hand, were clearly affected by the constraint manipulation.
Whereas unfavorable impressions ostensibly written under high
choice conditions were perceived as quite negative (M = 1.1),
the identical unfavorable impression was perceived as signifi-
cantly less negative (M = 2.2) when the writer was thought to
have been constrained to write unfavorable statements, F(1,
56) = 11.49, p < .01.

Inference of Actual Impression

The key dependent measures in this study involved partici-
pants' inferences, based on the written impressions, regarding
the writer's true feelings about them. The two inference mea-
sures were highly correlated (r = .81, p < .001) and so were
averaged to form a single measure of participants' willingness
to draw a dispositional conclusion from the written impressions.
Overall, participants in the favorable feedback condition char-
acterized the writer's actual impression of them as more positive
(M = 7.3) than did participants in the negative feedback condi-
tion (M = 2.8), F(1, 56) = 220.80, p < .001. There was also
a significant choice main effect such that participants in the
high choice condition perceived the writer's actual impression
to be more negative \((M = 4.5)\) than participants in the low choice condition \((M = 5.5)\), \(F(1, 56) = 11.07, p < .01\).

These main effects were qualified, however, by the predicted Feedback × Choice interaction, \(F(1, 56) = 7.69, p < .01\). Figure 1 shows the inference index means for all four conditions in terms of their deviation from the midpoint of the scale. Means increasing from 5 indicate more correspondent inferences for favorable feedback, and means decreasing from 5 indicate more correspondent inferences for unfavorable feedback. Inferences drawn from favorable feedback showed a clear failure to adjust for situational constraint. Favorable feedback participants perceived the writer to have an opinion of them that was equally positive when the writer was said to have been constrained to write only favorable statements \((M = 7.4)\) and when she was said to have been free to comment on either the participant's favorable or unfavorable qualities \((M = 7.2)\), \(F < 1\). Inferences drawn from unfavorable feedback, on the other hand, revealed clear adjustment for situational constraint. When the unfavorable impression was thought to have been written under high choice instructions, participants appropriately perceived the writer’s actual feelings toward them as quite negative \((M = 1.9)\), but when the writer was thought to have no choice but to write unfavorable comments, participants adjusted their inferences regarding her true feelings upward to reflect a significantly less negative or more uncertain impression \((M = 3.7)\), \(F(1, 56) = 18.60, p < .001\).

**Explicit Recognition of Situational Constraint**

The inference measure just described showed that participants receiving unfavorable feedback implicitly recognized the extent to which the content of the written impressions was constrained by the experimental instructions. Interestingly, neither of the questions tapping participants' explicit recognition of situational constraint revealed significant choice main effects or Feedback × Choice interactions. The only significant effect in either ANOVA was a feedback main effect on the experimental bias question showing that unfavorable feedback was rated as more experimentally biased \((M = 5.6)\) than was favorable feedback \((M = 4.1)\), \(F(1, 56) = 9.00, p < .01\).

**Self-Reported Surprise**

The measure of self-reported surprise showed that the feedback was rated as just as surprising when it was favorable \((M = 6.6)\) as when it was unfavorable \((M = 6.7)\), \(F < 1\). This suggests that the inference findings cannot be attributed to the relative unexpectedness of unfavorable feedback. Moreover, the ANOVA on the inference index was conducted again including self-reported surprise as a covariate. The results of this analysis were identical to the original ANOVA—Feedback × Choice interaction: \(F(1, 55) = 7.47, p < .01\)—confirming that the sensitivity of unfavorable feedback participants to situational constraint information cannot be accounted for by differential expectations.

**Discussion**

The results of Study 1 provide strong support for the asymmetrical sensitivity prediction generated by the QOP view of motivated reasoning. Participants receiving a flattering evaluation from the female confederate showed no sensitivity to the constrained nature of her evaluative comments. Demonstrating the classic correspondence bias pattern, favorable feedback participants rated the writer as having feelings about them that were equally positive when she was said to be constrained to write only positive comments and when she was said to be free to comment on either positive or negative qualities. Participants receiving an unflattering evaluation, on the other hand, were quite sensitive to the situational context in which the behavior occurred. When the female confederate’s unfavorable comments were thought to be freely chosen, she was perceived by the male participant to harbor genuinely negative feelings about him. When her written evaluation was said to be constrained to be unfavorable by experimental instruction, however, participants adjusted their impression, indicating something approaching uncertainty when asked to infer the writer's true feelings about them.

Perhaps the most striking evidence for the relative sensitivity of inferences drawn from preference-inconsistent information, however, is revealed by comparing the degree of correspondence shown by inferences made in the favorable and unfavorable feedback conditions. A careful inspection of Figure 1 shows no evidence of any overall tendency to reject preference-inconsistent information. Although inferences drawn from low quality (i.e., low choice) unfavorable feedback tend to be less correspondent (diverge less from the scale midpoint) than inferences drawn from low quality favorable feedback, inferences drawn from high quality (i.e., high choice) feedback actually appear somewhat more correspondent in the unfavorable than the favorable conditions. That is, consistent with the QOP prediction of unbiased sensitivity to preference-inconsistent information, the results of Study 1 show participants to be discriminating but ultimately responsible consumers of unfavorable feedback. Rather than merely rejecting unwanted information out of hand, participants showed skepticism about the meaningfulness of un-
favorable feedback when it was of uncertain attributional quality but were willing to accept its validity when rational attributional analysis suggested the feedback to be a freely chosen expression of the writer's true feelings.

Finally, three other aspects of the results of Study 1 should be noted. First, the results of the surprise ratings suggest that the pattern of asymmetrical sensitivity observed in Study 1 cannot be explained as a simple function of the differential expectedness of favorable and unfavorable evaluations. Both evaluations were rated as equally surprising, and all inference results were unchanged when the expectedness of the feedback was statistically controlled.3

Second, participants' assessments of the favorability of the written impression (intended as a check on the feedback manipulation) unexpectedly showed the same pattern of asymmetrical sensitivity to the situational constraint information as their inferences regarding the writer's true feelings. It is possible that our questions may simply have been inadequate to draw out the very subtle distinction we were looking for between the favorableness of the written impression and the favorableness of the writer's actual feelings. Once participants have contextual information and are motivated to use it, it may be very difficult to generate a question that will uncover a "pure" assessment of the behavior uncontaminated by the inferential process.

Third, when participants in Study 1 were asked in explicit terms whether they believed that their judgments had been affected by the situational constraint information, no effects analogous to those shown by the inference measures were found. That is, although the inferences made by unfavorable feedback participants about the writer's impression of them were clearly sensitive to the situational constraint manipulation, no evidence of this sensitivity was revealed when participants were asked direct questions regarding the extent to which the writer's impression was reflective of her true feelings or biased by the experimental directions. Such failures to accurately report on cognitive processes should no longer be surprising (Nisbett & Wilson, 1977). Still, the apparently mindless quality of unfavorable feedback participants' sensitivity to the situational constraint information does seem somewhat inconsistent with the notion that this sensitivity occurs because of the relatively effortful cognitive processing given to preference-inconsistent information. It would be desirable to have additional evidence linking inferential adjustment for situational constraint information to thoughtful cognitive processing. Study 2 was designed to provide that evidence.

Study 2

Perhaps the most commonly used method of demonstrating the necessity of thoughtful analysis in judgment processes is the manipulation of cognitive load (e.g., Baddeley & Hitch, 1974; Bargh & Thein, 1985; Gilbert, 1989; Jamieson & Zanna, 1989; Swann, Hixon, Stein-Seroussi, & Gilbert, 1990). The logic underlying this strategy is that if cognitive processing is necessary to produce a given judgmental effect, then the judgments of an individual precluded from engaging in this processing (e.g., by the processing demands of a concurrent cognitive task) should not show the effect. This strategy has been used repeatedly by Gilbert and others to demonstrate the effortful nature of adjusting inferences for the role of situational constraint (Gilbert & Krull, 1988; Gilbert, Krull, & Pelham, 1988; Gilbert, Pelham, & Krull, 1988; Yost & Weary, 1996). Accordingly, Study 2 replicated Study 1 with the inclusion of a cognitive load manipulation. If sensitivity to the quality of unfavorable feedback is indeed due to the relatively extensive processing it receives, then this effect should disappear if participants' ability to allocate this processing is diminished.

Method

Participants

Participants were 128 male students at Kent State University who participated for course credit. The data from 3 participants were not analyzed because these individuals expressed suspicion about the study during debriefing, and the data from 5 more were excluded because they failed a manipulation check (described subsequently), leaving a total of 120 in the final sample. Fifteen participants were randomly assigned to each of eight experimental conditions.

Cognitive Load Manipulation

For participants assigned to the no cognitive load condition, the procedure used in Study 2 was identical to that used in Study 1. For participants assigned to the cognitive load condition, the procedure was identical except for the following. As cognitive load participants were given the written impression of them generated by the writer, the experimenter mentioned that one of the secondary purposes of the study was to examine the effects of attention on the ability to process complex information. It was suggested that, in actual social situations, people rarely have the luxury of concentrating on one thing at a time and that we were interested in trying to re-create that kind of busy cognitive environment in this study. The experimenter explained to participants that their task was to evaluate the accuracy of the writer's impression while at the same time attending to a separate letter-counting test. Specifically, they were told that while they were reading the written impression and making their judgments, a tape recording of an individual reading strings of letters (one letter every 3 s) would be playing in the background. Their task 3

3 Moreover, as a means of further supporting a motivational explanation for the obtained results, 60 additional male students were recruited, and each was given a detailed description of Study 1 and all of the materials available to one of the original participants when he made his inferences about the female confederate's true opinion of him (e.g., his completed first impressions questionnaire and the confederate's written evaluation). The logic underlying this type of yoked-observer design is that if self-serving motivations are crucial to producing an observed pattern of bias, an uninvolved individual with an information base identical to that of the involved actor should not show the same pattern (e.g., Beckman, 1973; Holton & Pyszczynski, 1989). Supporting a motivational explanation of the results of Study 1, when these yoked observers were asked questions analogous to those answered by the original participants regarding the writer's true feelings, no pattern of asymmetrical sensitivity was found (Feedback X Choice interaction: F < 1). Instead, yoked observers were insensitive to the perceived choice manipulation in both the favorable feedback (high choice M = 7.4, low choice M = 7.0) and unfavorable feedback (high choice M = 3.3, low choice M = 3.3) conditions. Although ratings of self-reported surprise and the use of a yoked-observer control each have limitations as methods of ruling out cognitive counterexplanations, the fact that both methods converge on a similar conclusion provides strong support for a motivational explanation of the observed effects.
was to complete the materials but at the same time try to count the number of vowels in the letter strings. As a means of ensuring that participants attended to this counting task, they were told that all participants able to come within five of the correct number of vowels stated would receive an extra experimental point (all participants, in fact, received this extra point).

**Dependent Measures**

The dependent measures used in Study 2 were identical to those used in Study 1 with the exception of the measures examining explicit recognition of the situational constraint manipulation. Because we thought it plausible that our wording of the situational constraint measures might have been confusing to participants, we generated three new questions to try to measure this construct: (a) "How free was the other subject to write whatever she wanted in her impression or was constrained in some way in what she wanted in her impression?" (1 = not at all free, 9 = completely free), (b) "To what extent do you think the other subject's written impression of you was affected by the experimental directions?" (1 = not at all affected, 9 = affected very much), and (c) "Do you think that the other subject's favorable/unfavorable written impression of you was primarily caused by his or her liking/disliking for you or by the way we asked him/her to write down their impression of you?" (1 = primarily caused by liking--disliking of me, 9 = primarily caused by the directions she or he was given).

**Check on Cognitive Load Manipulation**

One potential problem with any cognitive load procedure is the possibility that the manipulation achieves its effects not by interfering with participants' ability to use information but by precluding the encoding of that information in the first place (Gilbert & Malone, 1995; Gilbert, Pelham, & Krull, 1988). To confirm that participants in Study 2 were able to encode the situational constraint information, we asked all participants in debriefing to describe the instructions the writer was given to complete her written impression. If participants did not provide the crucial perceived choice information in this open-ended question, they were asked more specifically whether the writer was free to write anything she wanted in her impression or was constrained in some way in what she could write. Only 5 participants were unable to correctly describe the choice manipulation, and only 1 of these 5 was from the cognitive load condition. The data from these 5 participants were excluded from the final analyses (results of all analyses were identical whether these participants were included or excluded).

**Results**

Unless otherwise noted, all analyses were Feedback (favorable vs. unfavorable) × Perceived Choice (high vs. low) × Cognitive Load (load vs. no load) ANOVAs.

**Evaluation of Written Impression**

The written impression was seen as more positive in the favorable feedback condition (M = 8.5) than in the unfavorable feedback condition (M = 1.9), F(1, 112) = 1,217.48, p < .01. The only other significant effect in the ANOVA was a Feedback × Choice × Cognitive Load interaction, F(1, 112) = 4.98, p < .05, showing that, as in Study 1, the effect predicted for the inference measures was seen in perceptions of the written impression as well. No cognitive load participants receiving favorable feedback were unaffected by the situational constraint manipulation, rating the impressions as equally favorable whether they were ostensibly written under high choice (M = 8.6) or low choice (M = 8.4) instructions, F < 1. No cognitive load participants receiving unfavorable feedback, on the other hand, were clearly affected by the constraint manipulation, rating unfavorable impressions as significantly more negative when ostensibly written under high choice (M = 1.2) than under low choice (M = 2.2) instructions, F(1, 112) = 11.49, p < .01. Participants in the cognitive load conditions showed a different pattern. As did the no cognitive load participants, they rated favorable feedback as equally positive under high (M = 8.5) and low (M = 8.4) choice instructions, F < 1; unlike the no cognitive load participants, however, they also rated unfavorable impressions as equally negative under high (M = 2.5) and low (M = 2.0) choice instructions, F(1, 112) = 2.04, p = .16.

**Inference of Actual Impression**

Responses to the two questions measuring participants' beliefs about the writer's actual impression of them were again highly correlated (r = .88, p < .001). The index created by combining the two items revealed a significant feedback main effect, F(1, 112) = 442.40, p < .001. Participants in the favorable feedback conditions characterized the writer's actual impression of them as more positive (M = 7.5) than participants in the negative feedback condition (M = 2.8).

The only other significant effect in the ANOVA was the predicted Feedback × Choice × Cognitive Load interaction, F(1, 112) = 7.73, p < .01. This interaction is depicted in Figure 2. As can be seen in that figure, the pattern of means observed in the no cognitive load conditions replicated the pattern found in Study 1. Favorable feedback participants in the no cognitive load condition rated the writer as having an opinion of them that was equally positive when the writer was said to have been constrained to write only favorable statements (M = 7.0) and when her comments were thought to be unconstrained (M = 7.5), F(1, 112) = 1.27, p = .27. No cognitive load participants in the unfavorable feedback conditions, on the other hand, ad-
justed for situational constraint, with high choice participants perceiving the writer’s actual feelings toward them as significantly more negative ($M = 1.8$) than low choice participants ($M = 3.4$), $F(1, 112) = 12.47, p < .001$. In contrast to participants in both Study 1 and the no cognitive load conditions, however, participants making their inferences while simultaneously engaging in the letter-counting task were insensitive to situational constraint in both the favorable (high choice $M = 7.5$, low choice $M = 7.7$) and unfavorable (high choice $M = 3.0$, low choice $M = 2.8$) feedback conditions, both $F$s < 1.

Explicit Recognition of Situational Constraint

As in Study 1, none of the measures tapping explicit recognition of situational constraint showed a pattern similar to that found on the inference measure. The question asking whether the written impression was primarily caused by the writer’s true feelings or the experimental directions did, however, reveal a significant choice main effect. Consistent with the intent of the perceived choice manipulation, low choice impressions were rated as significantly more situationally caused ($M = 5.6$) than were high choice impressions ($M = 4.6$), $F(1, 110) = 6.14, p < .02$.

Self-Reported Surprise

Unfavorable feedback was rated as marginally more surprising ($M = 6.9$) than favorable feedback ($M = 6.1$), $F(1, 112) = 3.81, p < .06$. However, when the ANOVAs on the inference measures were conducted again with self-reported surprise as a covariate, the crucial Feedback × Perceived Choice × Cognitive Load interaction remained highly significant, $F(1, 111) = 7.19, p < .01$, indicating that the inference results cannot be accounted for by differential expectations.4

Discussion

The results of Study 2 replicate the results of Study 1 and suggest that the tendency shown in both studies for inferences about unfavorable feedback to reveal greater sensitivity to situational constraint information is due to the relatively extensive cognitive processing it receives. As in Study 1, individuals not required to engage in a concurrent letter-counting task were sensitive to the constrained (or unconstrained) nature of the writer’s comments when those comments were unfavorable but not when they were favorable. The fact that unfavorable feedback participants did not similarly adjust their inferences for situational constraint under conditions of cognitive load, however, suggests that it is the allocation of cognitive processing to preference-inconsistent information that underlies this adjustment (Gilbert, Krull, & Pelham, 1988; Gilbert, Pelham, & Krull, 1988). According to a similar logic, the fact that inferences about favorable feedback were virtually identical with and without cognitive load suggests the unthinking nature of individuals’ acceptance of information that is consistent with a preferred judgment conclusion. Finally, although Study 2 participants reported a nonsignificant tendency to be more surprised by unfavorable than favorable feedback, the fact that the inferential effects were obtained even when self-reported surprise was statistically controlled argues against differential expectations as a viable counterexplanation for the differences observed in response to the two types of feedback.

Pratto and John (1991) argued that individuals show an “automatic vigilance” response to negative social information because of the adaptive importance of quickly and effortlessly attending to potentially threatening stimuli. Although no claims can be made from the current data regarding the true automaticity of the process, the fact that participants in neither Study 1 nor Study 2 showed any explicit recognition of their sensitivity to unfavorable feedback is suggestive of the fact that the relatively greater processing given to preference-inconsistent information may result from this kind of highly routinized vigilance response. This may also explain why evidence of inferential adjustment for situational constraint shows up even on a question intended to measure the positivity of the observed behavior (i.e., the written impression) independent of inferences about its meaning. The fact that this adjustment does not occur under conditions of cognitive load, however, suggests that although initiation of the vigilance response may be automatically triggered by preference-inconsistent information, the adjustment process itself requires cognitive resources and thus does not meet all of the criteria of a fully automatic process (Barth, 1984). Still, like other examples of semiautomatic phenomena, the judgmental outcome of the thoughtful processing evoked by preference-inconsistent information may be only partially under the perceiver’s control.

Although the preceding discussion is obviously speculative, the idea that the judgmental outcomes of preference-based processing are not fully controllable is quite compatible with both the general view of motivated reasoning presented here and the specific pattern of inference results seen in Study 2. Because the processing of preference-inconsistent information is thought to be essentially unbiased, the conclusions produced by this processing should be determined as much by the details of the available information as by the preference that initiates the processing. That is, although people may direct attention toward preference-inconsistent information in the hope of uncovering alternative explanations for it, the effortful processing that is the by-product of that hope can lead people toward nonpreferred as well as preferred conclusions. This fact is illustrated quite nicely by comparing the mean inference ratings for unfavorable feedback across the load and no load conditions. As with the results of Study 1, perhaps the most striking aspect of the results of Study 2 is the strong correspondent inferences drawn from unfavorable feedback in the high choice, no load condition. Not only did inferences in this condition differ as much from the scale midpoint as those made in any of the favorable feedback conditions, but, more central to the current point, they were also more correspondent than inferences made for unfavorable feedback in the high choice, load condition.5 In other words,

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4 The self-reported surprise measure also revealed a significant Choice × Cognitive Load interaction, $F(1, 112) = 5.18, p < .05$. The mean surprise ratings of the four relevant conditions were as follows: no load, low choice, $M = 5.7$; no load, high choice, $M = 6.4$; cognitive load, low choice, $M = 7.7$; and cognitive load, high choice, $M = 6.8$.

5 In fact, statistical comparison of the respective cell means from the cognitive load and no cognitive load conditions showed that only in the
participants who believed that the writer’s unfavorable evaluation of them was freely chosen rated her true opinion as more negative when they were able to think deeply about the relevant information than when they were not. Although unfavorable feedback participants would almost certainly have preferred to conclude that the writer’s negative impression did not reflect her true feelings even when it was unconstrained, the more they were allowed to think about the relevant information, the more they seemed to have been led toward the rational, albeit distasteful, conclusion that it probably did.

Study 3

Studies 1 and 2 examined sensitivity to information quality using a paradigm that was essentially a cross between a self-serving bias and a correspondence bias procedure. Judgments about favorable and unfavorable interpersonal feedback were examined because people can be expected to have a strong preference to be liked rather than disliked by others. Adjustment for situational constraint was used as the indicator of sensitivity because of research linking correspondence bias to the capacity to engage in effortful cognitive processing (e.g., Gilbert, Krull, & Pelham, 1988; Gilbert, Pelham, & Krull, 1988), as well as studies suggesting a role for motivation in this link (Tetlock, 1985; Webster, 1993).

The predicted pattern of asymmetrical sensitivity should occur, however, in response to any kind of preference-relevant information. It would be desirable, therefore, to demonstrate the predicted effect in a different judgmental domain using a preference not created by interpersonal concerns. Accordingly, Study 3 examined the predictions of the QOP view in judgments about favorable and unfavorable medical information. Most people can be expected to have a strong preference for health over illness, and past research on motivated reasoning has made extensive use of health-related judgments for this reason (Fein et al., 1990; Ditto & Lopez, 1992; Kunda, 1987; Liberman & Chaiken, 1992).

Similarly, other measures of sensitivity to information quality are also possible. Studies 1 and 2 showed that individuals are more sensitive to the possibility of alternative explanation when processing preference-inconsistent than preference-consistent information. An even stricter test of the asymmetrical sensitivity prediction, however, would be to examine whether the processing of preference-inconsistent information is sensitive not just to the possibility of alternative explanations but also to their probability (Fein et al., 1990; Hilton, Fein, & Miller, 1993). That is, it may be the case that the relatively effortful processing directed toward preference-inconsistent information merely makes people more likely to consider any kind of alternative explanation for unwanted information and that this consideration does not distinguish between a probable alternative explanation and one that is possible but highly improbable. Although this would still represent evidence of relatively effortful processing of preference-inconsistent information, the term sensitivity would seem somewhat misleading in this case. If the processing of preference-inconsistent information is truly characterized by an unbiased sensitivity to information quality, individuals should discount the validity of unwanted information when given a probable alternative explanation but accept the information as true if the alternative explanation is possible but improbable. Study 3 provided this strict test of the unbiased sensitivity prediction.

Method

Participants

Sixty-eight undergraduates from general psychology courses at Kent State University participated for course credit. The data from 1 participants were discarded after participation because of suspicions voiced about the experimental manipulations, and the data from 3 others were discarded because debriefing revealed them to have misunderstood the experimental manipulations. The final sample consisted of 64 participants (41 women and 23 men).

Procedure

The experimental procedure used in this study has been described in detail elsewhere (see Croyce & Ditto, 1990, or Ditto & Croyce, 1995, for discussions of its development and validation). It is described here with an emphasis on those aspects of the procedure unique to this study.

On arrival at the laboratory room, participants were told that the study was concerned with “the relationship between psychological characteristics and physical health” and would consist of them completing health and personality questionnaires and taking some simple medical tests. The experimenter then measured participants’ blood pressure and gave them a packet of “personality questionnaires” to complete. After completion of the questionnaires, the experimenter read a description of a fictitious medical test called the “TAA Saliva Reaction Test.” The description stated that researchers had recently discovered a condition called “TAA positivity” characterized by the presence of a particular enzyme (thioamine acetylase) in the body. TAA positivity was said to affect pancreatic functioning.

The experimenter went on to state that, because TAA was found in saliva, a simple self-administered test for the condition existed. Participants were told initially to rinse their mouths with mouthwash, ostensibly to cleanse their mouths of recently consumed materials that might contaminate the test. Next, participants were told to place a small amount of saliva in a cup, rub a “TAA-reactive strip” in their saliva, and look for a color reaction. Participants were told that if the TAA-reactive strip came in contact with saliva in which TAA was absent (indicating normal TAA negativity), it would show no color reaction, but if it came in contact with saliva containing TAA, it would change from its normal pink color to a dark blue. After the experimenter had checked to make

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6 This packet contained a 14-item hypochondriasis scale (Pilowsky, 1967) used to identify participants who might respond poorly to the experimental manipulations (Croyce & Ditto, 1990; Jemmott, Ditto, & Croyce, 1986). Seven participants answered 8 or more questions in the hypochondriacal direction. These participants were told that they were in a control condition, given their full experimental participation credit, and excused.

7 In previous studies using this paradigm, the TAA condition was sometimes described as being caused by the presence of the TAA enzyme (e.g., Ditto & Jemmott, 1989; Ditto & Lopez, 1992, Study 3) and other times by its absence (Ditto et al., 1988; Ditto & Lopez, 1992, Study 2; Jemmott et al., 1986). Identical effects have been demonstrated with both versions.
sure all participants understood the testing procedures, participants were left alone to conduct the test and told to complete the "test result report form" (described subsequently) as soon as the test was completed.

When participants administered their TAA saliva reaction test, the test strip turned blue for all participants, because the test strip was actually a glucose-sensitive strip (used for home blood-sugar testing) and a small amount of glucose had been added to the mouthwash. In this way, all participants were led to believe that they were TAA positive.

Manipulations

Although the basic description of the TAA test was the same for all participants, two aspects of the information given to them differed across experimental conditions. First, the desirability of having TAA positivity was manipulated by leading some participants to believe that TAA positivity had healthy consequences (e.g., "People who are TAA-positive are 10 times more likely to experience pancreatic disease than are people whose secretory fluids do not contain TAA") and leading others to believe that it had unhealthy consequences (e.g., "People who are TAA-positive are 10 times less likely to experience pancreatic disease than are people whose secretory fluids do not contain TAA"). Thus, when participants saw the color reaction from pink to blue, some interpreted that as a favorable test result indicating a relative immunity to pancreatic disease, whereas others interpreted it as an unfavorable test result indicating a relative susceptibility to pancreatic disease. As a means of controlling participants' expectations about their likelihood of being TAA positive, all descriptions contained identical base-rate information revealing that preliminary research indicated that TAA positivity was found in "about 1 out of every 20 people (5%)" (Ditto & Lopez, 1992).

Second, all participants were offered an alternative explanation for why their test strips turned blue, but the probability of that alternative explanation being true was manipulated. Within the description of the test, all participants were told that "false readings" could sometimes be caused by "unusually high or low blood sugar levels." For some participants, however, these false readings were described as reasonably likely, whereas for others they were described as possible but unlikely. Specifically, for participants assigned to the high probability condition, it was stated that the test is simple and reasonably accurate, although false readings can in some cases be caused by unusually high or low blood sugar levels. About 1 out of every 10 positive color reactions (indicating TAA-positivity), is caused by unusual blood sugar levels. Alternatively, for participants assigned to the low probability condition, it was stated that the test is simple and highly accurate, although false readings can in very rare cases be caused by unusually high or low blood sugar levels. However, only about 1 out of every 200 positive color reactions (indicating TAA-positivity), is caused by unusual blood sugar levels.

Dependent Measures

Immediately after self-administering the TAA test and obtaining their positive test results, participants completed the test result report form containing the dependent measures. First, participants were asked to report on the results of their TAA test. All participants correctly perceived their TAA tests as indicating TAA positivity.

Second, two questions were asked regarding participants' beliefs about the accuracy of their TAA test: (a) "How confident are you that this test result is an accurate indication of your actual TAA status?" (1 = not at all confident, 9 = very confident) and (b) "If you were to take a TAA test again in the future, how likely do you think it is that it would give you a similar result?" (1 = very unlikely, 9 = very likely).

Finally, as in Studies 1 and 2, a measure of self-reported surprise with the feedback was included. Specifically, participants were asked "Did the TAA saliva reaction test turn out as you expected? That is, how surprised were you with the results of your TAA test?" (1 = not at all surprised, 9 = very surprised).

Debriefing

On completion of the dependent measures, participants underwent a careful process debriefing (Ross, Lepper, & Hubbard, 1975). As in past studies using this paradigm, participants indicated little if any distress regarding the procedure during the debriefing.

Results

Feedback (favorable vs. unfavorable) × Probability of Alternative Explanation (high vs. low) × Gender (male vs. female) ANOVAs revealed no effects for gender. Unless otherwise noted, all analyses reported are Feedback × Probability of Alternative Explanation ANOVAs.

Perceived Accuracy of Diagnosis

The key dependent measure in this study was participants' perceptions of the accuracy of the TAA diagnostic test. The two questions measuring perceptions of diagnostic accuracy were highly correlated (r = .79, p < .001) and thus were averaged to generate a single measure of the perceived accuracy of the diagnosis. This perceived accuracy index showed significant main effects for both feedback (favorable M = 6.8, unfavorable M = 5.4), F(1, 60) = 13.11, p < .001, and probability (high probability M = 5.7, low probability M = 6.5), F(1, 60) = 4.65, p < .04.

Both of these main effects were qualified by the predicted Feedback × Probability interaction, F(1, 60) = 6.86, p < .02. This interaction is depicted in Figure 3. Simple effects analyses showed that when the diagnosis was favorable, participants

![Figure 3](https://example.com/figure3.png)

**Figure 3.** Mean ratings for perceived test accuracy index by diagnosis and probability of alternative explanation conditions. Higher numbers indicate greater confidence in the accuracy of the TAA diagnostic test.
showed no sensitivity to the probability of blood sugar as an alternative explanation for their test result. Favorable diagnoses were perceived as equally accurate when the alternative explanation was described as probable (M = 6.9) and when it was described as improbable (M = 6.7), F < 1. In sharp contrast to favorable diagnosis participants and strongly consistent with predictions, unfavorable diagnosis participants were highly sensitive to the probability of blood sugar as an alternative explanation for their test result. When blood sugar was described as a probable alternative explanation for an unfavorable test result, the test was perceived as relatively inaccurate (M = 4.4). When blood sugar was described as an improbable alternative explanation, however, participants receiving an unfavorable diagnosis adjusted their accuracy ratings significantly upward (M = 6.3), F(1, 60) = 11.61, p < .01. Accuracy ratings of participants in the unfavorable diagnosis, improbable alternative explanation condition did not differ significantly from those of participants in either of the favorable diagnosis conditions, Fs < 1.

**Self-Reported Surprise**

Analysis of the self-reported surprise measure showed that, consistent with the intent of the feedback manipulation, unfavorable diagnoses were perceived as just as surprising (M = 7.0) as favorable diagnoses (M = 6.3), F(1, 60) = 1.47, p > .2. Moreover, when surprise was included as a covariate in the perceived accuracy ANOVA, all effects remained unchanged—Feedback × Probability interaction: F(1, 59) = 7.48, p < .01—suggesting that, as in Studies 1 and 2, the differential expectedness of favorable and unfavorable feedback cannot account for the observed results.

**Discussion**

The results of Study 3 provide strong support for the asymmetrical sensitivity hypothesis in a second judgmental domain with a different and more stringent measure of sensitivity to information quality. Once again supporting the predictions of the QOP view of motivated reasoning, individuals receiving favorable medical information showed little sensitivity to the quality of that information. Participants were just as confident in the accuracy of favorable medical diagnoses when there was ostensibly a 1 in 10 chance that the reading was false as when there was only a 1 in 200 chance. Although this level of insensitivity to detail may seem inconsequential when taken alone, it stands in sharp contrast to the sensitivity to the same level of detail shown in judgments about unfavorable medical information. Individuals receiving an unfavorable medical diagnosis might have been expected to use any hint that the diagnostic test was flawed as evidence of the inaccuracy of their diagnosis. Instead, the results of the perceived accuracy index suggest that these individuals engaged in a careful analysis of the available information to assess the probability that their unwelcome test result was indeed true. When this information suggested that it was reasonable to suspect that their test result might have been affected by unusual blood sugar levels, considerable skepticism regarding the validity of the test result was expressed. When the information suggested that unusual blood sugar was a possible but seemingly improbable alternative explanation, on the other hand, individuals receiving an unfavorable diagnosis seemed to acquiesce to this unfortunate truth, rating the diagnostic test as just as likely to be accurate as did individuals who received a favorable diagnosis.

This last result is particularly important in that it once again demonstrates a rather remarkable pattern of unbiased sensitivity in the processing of preference-inconsistent information. The probability manipulation used in this study was extremely subtle. Not only were individuals confronted with an unfavorable diagnosis sensitive to this subtlety, but they were willing to follow its implications wherever they led, even when this sensitive analysis of the information suggested that there was little hope that their unwelcome diagnosis might be untrue.

**General Discussion**

Three studies have now been described supporting the contention that preferences affect information processing by altering the amount of detail-oriented cognitive analysis given to preference-consistent and preference-inconsistent information. Borrowing a logic found in both the ELM and correspondence bias literatures, the primary methodological strategy used in each study was to reveal the relatively effortful processing of preference-inconsistent information by showing that judgments about it were more sensitive to information quality than judgments about preference-consistent information. The studies uniformly demonstrated this pattern in two different judgment domains involving two different operationalizations of sensitivity and ruling out cognitive counterexplanations for the observed effects based on the differential expectedness of favorable and unfavorable feedback.

This pattern of asymmetrical sensitivity is difficult to explain on the basis of past treatments of motivated reasoning. Because the biased belief construction view sees the same goal-directed memory recruitment process as underlying the processing of both preference-consistent and preference-inconsistent information, the effects of information quality would be expected to be similar for both types of information. The most straightforward prediction from the biased belief construction view is that judgments about both favorable and unfavorable feedback should be sensitive to information quality. In fact, the constraining role of prior information on judgment has been one of the primary forms of empirical support offered for biased memory search as the mediator of motivationally biased judgments (Kunda, 1990; Kunda & Sanitioso, 1989; Sanitioso et al., 1990). All three studies reported here, however, showed participants to be uncritical consumers of information they wanted to believe, accepting as true feedback suggesting that they were liked or healthy even when that feedback might be seen by an objective observer as of dubious quality. In sharp contrast, the processing of unfavorable feedback was found to be extremely sensitive to the quality of the available information. This was evidenced by the fact that, in each study, high quality unfavorable feedback was more readily accepted as true than low quality unfavorable feedback, as well as by the fact that high quality unfavorable feedback was accepted just as readily as high quality favorable feedback.

This latter finding, in fact, may provide the most compelling support for the QOP view. Contrary to a simple image of per-
receivers as working to embrace preference-consistent and reject preference-inconsistent information, none of the three studies revealed any overall tendency for individuals to more readily accept favorable than unfavorable feedback. Although the designs of Studies 1 and 2 made the relevant statistical comparisons difficult, both studies showed participants to accept an unconstrained negative evaluation as at least as indicative of the writer’s true feelings as an unconstrained positive one. Similarly, simple effects analyses showed the feedback main effect in Study 3 to be completely qualified by the Feedback × Probability interaction. That is, although participants perceived the unfavorable test result as less accurate than the favorable test result when alternative explanation was said to be probable, the unfavorable and favorable test results were perceived as equally accurate when alternative explanation was possible but unlikely. This willingness to acknowledge the validity of high quality preference-inconsistent information is difficult to explain from any past treatment of motivated reasoning but is quite consistent with the QOP prediction that preference-inconsistent information receives relatively effortful, but otherwise unbiased, cognitive analysis.

Still, sensitivity to information quality provides only indirect support for the contention that preference-inconsistent information is processed more effortfully than preference-consistent information. This evidence is complemented, however, by the results of a number of previous studies that have used a diverse array of methodological strategies to demonstrate relatively effortful processing of unwelcome information (see Taylor, 1991, for a review). In comparison with favorable feedback, unfavorable feedback has been shown to be analyzed longer (Ditto & Lopez, 1992, Study 2) and remembered better (Wyer & Prey, 1969) although also only indirect in nature, the role of effortful cognitive processing in the current studies receives additional support from the results of Study 2 showing that sensitivity to preference-inconsistent information is disrupted under conditions of cognitive load.

At the empirical level, then, the available evidence seems quite consistent with the QOP view of motivated reasoning. In the next section, we go beyond the issue of empirical support to outline some of the conceptual advantages of the QOP perspective.

**The QOP View and the Problem of Motivated Reasoning**

At the outset of this article, we cited two related conceptual issues contributing to the problematic status of motivated reasoning in experimental psychology: (a) a view of motivationally based judgment biases as fundamentally different from judgment biases stemming from “cognitive” sources and (b) a view of motivated bias as inherently paradoxical in that it seems to require both self-deception and a potentially reckless unresponsiveness to information signaling threat in the environment. A key strength of the QOP view in this regard is that, because the mechanism it posits to underlie motivated bias is quite different from that posited by past work, it avoids many of the problems that have historically plagued theory and research on motivated reasoning.

First, rather than viewing motivational forces as having a unique effect on judgment processes, the QOP view subsumes motivational bias into the information-processing literature as simply another example of what is perhaps the dominant theme to emerge from the first 25 years of social cognition research: People think more deeply about information in some situations than in others (e.g., Bargh, 1984; Chaiken, 1987; Fiske & Neuberg, 1990; Hilton et al., 1991; LaBerge & Samuels, 1974; Langer, 1978; Petty & Cacioppo, 1986; Schank & Abelson, 1977; Shiffrin & Schneider, 1977; Tetlock, 1983, 1985; Tversky & Kahneman, 1974; B. Weiner, 1985). The QOP view fits seamlessly into this body of research in that it simply posits another situational factor—the consistency of information with a preferred judgment conclusion—that affects the degree to which incoming information is subjected to effortful cognitive analysis. From this perspective, preference-based biases in judgment can be explained as resulting from the same processes that contribute to a host of other types of judgment phenomena. No new explanatory concepts are needed. No argument for a fundamental difference need be made.

Second, positing processing extent rather than processing goal as the key difference underlying the treatment of preference-consistent and preference-inconsistent information removes much of the self-deceptiveness from motivated reasoning (Ditto & Lopez, 1992). Because previous explanations of motivated bias view individuals as intentionally pursuing the goal of reaching a desired conclusion, some level of self-deception is necessary in that the illicit nature of the goal driving the process must go unrecognized by the individual (Erdelyi, 1974; Kruglanski, 1996). The QOP view, on the other hand, sees motivated bias as arising from a more passive, less intentional process in which preference-inconsistent information provokes a critical analysis of its validity, whereas the validity of preference-consistent information is accepted, unthinkingly, at face value. Because intention is removed from the process, no self-deception is implied.

Finally, not far behind all research on motivated reasoning lurks an adaptive paradox. If beliefs are biased by wishes and fears, how can people deal effectively with negative feedback and environmental threat (Taylor & Armor, 1996; Taylor & Gollwitzer, 1995)? The QOP view proposes a novel resolution to this paradox by explaining people’s reluctance to accept threatening information and their ultimate sensitivity to it as by-products of the same process. Central to the QOP argument is that it makes good adaptive sense for negative information to initiate effortful, detail-oriented cognitive analysis (Pratto & John, 1991; Schwarz, 1990; Taylor, 1991). Although one by-product of this effortful processing is a relative skepticism regarding the validity of preference-inconsistent information, it is crucial to recognize that this skepticism is thought to arise not from an active attempt to disbelieve unwanted information but from the sensitivity of this effortful analysis to information quality (causing the rejection of all but high quality preference-inconsistent information). Stated another way, there is little question that people less readily believe information they do not want to believe than...
information they do want to believe. The research reported here, however, suggests that the preponderance of this bias occurs because of the uncritical acceptance of preference-consistent information rather than the rigid denial of preference-inconsistent information (Ditto & Lopez, 1992; Lopez et al., 1994; Miller & Ross, 1975). From an adaptive perspective, it would seem crucial for an organism to develop an affective–motivational system that would lead it to orient toward potentially threatening stimuli, attempt to carefully discriminate between real and imagined threat (i.e., distinguish information quality), and acknowledge and respond to threat that is deemed to be real. Being an undiscerning consumer of desirable feedback, on the other hand, may have relatively fewer costs (Brown & Dutton, 1995) and a variety of important benefits (Bandura, 1989; Bjorkland & Green, 1992; Taylor & Brown, 1988). In this way, the view of motivated reasoning espoused here removes much of the paradox from motivated bias by suggesting that the primary source of people's biases is not the reckless rejection of information they do not want to believe but an unthinking willingness to accept information they do want to believe.

Conclusions and Some Boundary Conditions

In this article, we have argued for two related conclusions: (a) that preference-inconsistent information is analyzed more thoughtfully than preference-consistent information and (b) that judgments about preference-inconsistent information are more sensitive to information quality than judgments about preference-consistent information. Although we believe these conclusions are strongly supported by both past research and the studies reported here, it is important to point out a few boundary conditions on the current findings. Social cognition research has shown that many factors can affect how effortlessly information is processed, and a functional perspective suggests a number of conditions under which the allocation of cognitive resources should and should not make adaptive sense. Thus, it will not always be the case that people will think more deeply (or more sensitively) about preference-inconsistent than preference-consistent information.

First, there are a number of situations in which it makes good adaptive sense to devote effortful cognitive analysis to preference-consistent information. For example, preference-consistent information that is particularly implausible or unexpected (e.g., the discovery that one is holding a million dollar lottery number) is likely to be scrutinized quite carefully (e.g., the individual is likely to check and recheck the number on the ticket against the number on TV to make sure this unimaginable windfall is actually true). Similarly, any factor that increases either the incentive for accurate judgments or the penalty for inaccurate ones (e.g., Borgida & Howard-Pitney, 1983; Fiske & Neuberg, 1990; Kruglanski, 1990; Petty & Cacioppo, 1986; Tetlock & Kim, 1987) should promote effortful processing of even information people want to believe. The QOP view does not reject the notion that factors other than preference consistency can affect how deeply information is processed. All it contends is that preference consistency is an independent predictor of processing extent that (like any other predictor) will reveal its effects (a) when all other factors are equal and (b) when no other factor (e.g., expectancies or accuracy motivation) exerts an overwhelmingly powerful effect.

Second, there will also be instances in which preference-inconsistent information will not receive extensive analysis. The central hypothesis of the QOP view—that people direct attention and think toward preference-inconsistent information—quickly runs afoul of the strong intuition that people often seem to avoid thinking about negative events and undesirable personal characteristics and focus instead on positive occurrences and qualities. The crucial point here is that the QOP view contends only that thoughtful processing is the initial reaction to confrontation with preference-inconsistent information (Ditto & Lopez, 1992). From an adaptive perspective, the tendency to simply turn away from an initial confrontation with unwelcome information seems reckless (Pratto & John, 1991); once convinced that the information is valid and that nothing can be done to change it, however, the individual gains little through additional cognitive preoccupation (Ditto & Lopez, 1992; Frey, 1986). Thus, although strong evidence supports the QOP contention that unfavorable feedback will initially receive relatively thoughtful processing, the most common reaction to irrefutable negative information may be to try not to think about it (which, paradoxically, may sometimes contribute to rumination; Tait & Silver, 1989; Wegner, 1994), or to direct attention and thought to aspects of the self (Steele, 1988) or others (e.g., Taylor, 1983; Wills, 1981) that serve to frame the negative information in the best possible light (Ditto & Lopez, 1992).

Finally, and perhaps most important, the current research should not be taken to suggest that judgments about preference-inconsistent information will always be "accurate" or will always produce adaptive behavioral responses. A classic misinterpretation of adaptive arguments for behavioral processes is that simply because a given behavioral strategy makes good pragmatic sense, it will always lead to functional outcomes. On the contrary, all we wish to argue here is that the general strategy of allocating greater cognitive resources to the processing of preference-inconsistent than preference-consistent information makes adaptive sense, not that the specific outcomes of this strategy will always be ideal. The unthinking acceptance of preference-consistent information, for example, although certainly less costly overall than the indiscriminate rejection of threatening information, can lead to important misjudgments in some cases (Baumeister, 1989). Similarly, an important issue for future research to consider is whether sensitivity to preference-inconsistent information breaks down under conditions of strong motivation (e.g., intense personal threat, such as that experienced on receipt of a serious medical diagnosis). In other words, although an important part of the current analysis is that people deal more effectively with preference-relevant information than

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8 The ideas presented here complement those discussed by Taylor and Gollwitzer (1995) suggesting that the paradox can be resolved by assuming that people are more likely to show positive illusions when they are in an implemental rather than a deliberative mind-set. Confrontation with preference-inconsistent information would seem likely to initiate a deliberative mind-set. Indeed, Gollwitzer's description of the deliberative mind-set (e.g., Gollwitzer, 1990) is quite similar to descriptions of the detail-oriented cognitive processing thought to be initiated by negative affect (e.g., Bless et al., 1996).
previous treatments have suggested, the QOP view should not be taken to predict that preferences never bias judgments or that motivated bias never interferes with adaptive coping responses. Adaptive functioning requires people to walk a fine line between believing what they want to believe and believing what they have to believe. The walk down that line may often be wobbly and may even be punctuated by an occasional fall; however, research on motivated reasoning can advance only if it is recognized that both passion and reason play complicated roles in the struggle to maintain this delicate balance. The challenge facing future research is to uncover the subtle ways in which people accomplish (and sometimes fail to accomplish) this difficult but essential tightrope act.

References
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